

Description

A TRAINING DEVICE USED WITH A SPORTS STICK HAVING A HOLLOW HANDLE

BACKGROUND OF INVENTION

FIELD OF THE INVENTION

[0001] The present invention generally relates to a sports training device and particularly to a sports training device and kit for use in training for sports using a sport stick having a hollow handle.

DISCUSSION OF RELATED ART

[0002] Many sports involve use of a racquet, stick or other similar equipment, such as in hockey, lacrosse, golf, tennis and baseball. Because of the importance of hand position on the stick in many different sports, many sports sticks and handles have specific designs. For example, some sports require frequent hand movements along the stick or handle such as in tennis, hockey and lacrosse. US 6,500,079

to Tucker (and divisional application US 2003/0045380 A1), discloses an overlay located over the shaft of the stick or handle that is designed to accommodate how a player moves their hands along the handle. Other sports sticks focus on the configuration of the handle, such as adding a bend in the handle to improve the balance and weight distribution of the stick.

[0003] There are also sports training aids known in the art for sports sticks. Some of these types of training aids are designed with a specific configuration such as a particular size and shape and are not reconfigurable by the user. Others provide a means of adding stiffness and flexibility to the sport stick for use in training, by inserting a device into the hollow handle of the stick. These types of training devices typically focus on manipulating the flexure of the stick while in use and do not provide a means to manipulate the weight distribution within the stick.

[0004] Some sports enthusiasts currently add sand or other materials to a hollow handle of a sport stick to increase the weight of the stick temporarily for training purposes. This method of increasing the weight does not allow the user to regulate effectively the weight of the stick and is a cumbersome and messy procedure. The user must have

the ability to store the sand when the stick is not being used for training purposes, and must have a means for efficiently adding the sand to the handle. Further, added material such as sand is likely to shift or escape from the handle.

[0005] Although there are many different types and styles of sports sticks and training devices, there are no known training devices designed to allow a user to add or adjust weight to an existing sports stick or handle at selected locations along the length of the stick or handle. There are also no known sports training devices that are easily reconfigurable by adding or removing weighted components as desired by the user. This type of training device would allow the user to reconfigure the training device to meet multiple training activities and to meet the desired weight training requirements of different users.

[0006] Thus, there is a desire and need in the art for a device configured to add or adjust weight at selected locations along the length of an existing sport stick or handle to be used as a sports training device and that can be easily reconfigured by the user.

SUMMARY OF INVENTION

[0007] Accordingly, the present invention provides a sports train-

ing device for use with a sport stick having a hollow handle such as a hollow handled lacrosse stick. The sports training device of the present invention enables a user to add or adjust weight to the sport stick at selected locations along its length. The added weight provides more precise movement-specific strength training capabilities than currently available in the art. The sports training device is versatile and may be configured for use in a variety of different sport tools such as hockey sticks, lacrosse sticks and the like. It may also be reconfigured by a user by repositioning the weighted components and changing the quantity of weighted components along its length.

[0008] In one embodiment of the present invention, a training device for use with a hollow handled sport stick includes a rod assembly including a plurality of rod members threadably connected. The rod assembly is configured to be received within the hollow handle of the sport stick. First and second bumper elements are connected to opposing ends of the rod assembly. At least one of the plurality of rod members provides weight at a selected location along the sport stick.

[0009] In another embodiment of the present invention, a sports training device includes a sport stick having a hollow han-

dle and a rod assembly configured to be removably received within the hollow handle. A plurality of bumper elements, having an insert connected to an inner diameter of the plurality of bumper elements, is configured to threadably connect to ends of the rod assembly. The rod assembly also includes at least one rod member configured to provide weight at a selected location along the sport stick.

[0010] In yet another embodiment of the present invention, a kit for sports training includes a plurality of rod members configured to be threadably connected to form a rod assembly and to be received within a hollow handle of a sport stick. A plurality of threaded connectors are included and first and second bumper elements, each having an insert configured to threadably connect the first and second bumper elements to opposing ends of the rod assembly are also included.

[0011] In still another embodiment of the present invention, a sports training device includes a sport stick having a hollow handle and an end cap configured to fit on an end of the sport stick. The end cap includes an inner member positioned within the hollow handle adjacent to an end of the sport stick and an outer member having a portion ex-

tending out of the hollow handle and threadably connected to the inner member. The outer member includes an open end configured to expand over the inner member when tightened to secure the end cap to the sport stick.

[0012] In still another embodiment of the present invention, a method of sports training with a sport stick having a hollow handle includes the steps of: connecting two rod members to form a rod assembly having a selected weight and length; connecting a first bumper element to one end of the rod assembly and a second bumper element to an opposite end of the rod assembly; placing the rod assembly inside the hollow handle; and training with the sport stick.

[0013] Other features of the present invention will become more apparent to persons having ordinary skill in the art to which the present invention pertains from the following description and claims taken in conjunction with the accompanying figures.

BRIEF DESCRIPTION OF DRAWINGS

[0014] The foregoing features, as well as other features, will become apparent with reference to the description and figures below, in which like numerals represent like elements, and in which:

- [0015] Figure 1 is a front view of an embodiment of a sports training device of the present invention;
- [0016] Figure 2 is a front view of an embodiment of a sports training device of the present invention positioned within the handle of a lacrosse stick;
- [0017] Figure 3 is an exploded view of a rod assembly and bumper elements of the present invention;
- [0018] Figure 4 is a front view of an embodiment of a sports training device of the present invention;
- [0019] Figure 5 is an exploded view of a bumper element and insert of the present invention;
- [0020] Figure 6 is an assembled perspective view of a bumper element and insert of the present invention;
- [0021] Figure 7 is an exploded view of a mid bumper and mid insert of the present invention;
- [0022] Figure 8 is a perspective view of an end cap assembly of the present invention;
- [0023] Figure 9 is an exploded view of an end cap assembly of the present invention; and
- [0024] Figure 10 is a perspective view of an embodiment of a kit of the present invention.

DETAILED DESCRIPTION

- [0025] The present invention provides a sports training device

that enables the user to add or adjust weight to a sport stick, such as a lacrosse stick, at desired locations along its length. The present invention is reconfigurable by changing the location of the weighted components along the length of the stick or adding or removing weighted components. The sports training device can be used for training in a variety of different sports that utilize a sport stick having a hollow handle and would benefit from a variable weight distribution. A user may configure the sports training device to have a specific length and diameter to accommodate specific lengths and sizes of existing sports sticks.

[0026] Referring now to the figures, a sports training device 20 of the present invention is configured to be received within a hollow handle 22 of a standard sport stick. For illustrative purposes, and not by way of limitation, the present invention is shown for a lacrosse stick as shown in Figure 2. Sports training device 20 of the present invention provides an improved method of increasing the weight of a sports stick to provide enhanced training capabilities. As shown in Figure 1, sports training device 20 may be configured with at least one rod member 28 and a first and second bumper element 30 and 32. One or more

rod members 28 may be connected together to form a rod assembly 34 to achieve the desired length of sports training device 20. First and second bumper elements 30 and 32 may be connected on opposing ends of rod assembly 34. First and second bumper elements 30 and 32 may comprise the same component, reducing the number of required overall components and thereby reducing manufacturing costs.

[0027] In the embodiment shown in Figures 1–3, sports training device 20 includes first and second bumper elements 30 and 32 received on opposing ends of rod assembly 34. Rod assembly 34 in this embodiment includes two rod members 28 threadably connected together. It is to be understood, however, that any quantity of rod members 28 may be utilized depending on the length required by the particular user. Rod members 28 may be constructed of a metallic material such as steel to provide sufficient weight for enhanced training with the sport stick. Alternatively, rod members 28 may be constructed of a light weight material such as plastic or wood. A user may then connect selected weighted and unweighted rod members 28 to form a desired configuration of rod assembly 34. This enables a user to position weighted rod members 28

at desired locations along the length of a sport stick to achieve a desired weight distribution. In addition to changing the material used to construct rod members 28 to alter the weight of the sports training device 20, the weight of a given rod member 28 may also be varied by changing the diameter or size of rod member 28. Rod member 28 may include a threaded aperture 46 on opposite ends as shown in Figure 3. Threaded apertures 46 may be configured to receive a threaded connector 44, similar to a threaded rod, to connect two or more rod members 28 together to form the desired length of rod assembly 34. First and second bumper elements 30 and 32 have an outer diameter 26 (See Fig. 1) configured to fit snugly within hollow handle 22 and cushion or suppress any movement of training device 20 within hollow handle 22 during use. First and second bumper elements 30 and 32 may include a tapered end 33 to facilitate insertion of training device 20 into hollow handle 22. Bumper elements 30 and 32 may be constructed of a variety of materials having a variety of different densities including, but not limited to, foam, plastic and rubber. A given bumper element 30 or 32 may also be constructed of a dual density material such as a dual density foam. For example,

the outer surface of bumper element 30 or 32 may include a lower density material to allow it to easily compress and slide within hollow handle 22 to its desired location. Near the center or core of bumper element 30 or 32, a higher density material may be used to provide stronger support of training device 20 within hollow handle 22 and to reduce movement or vibration.

[0028] As shown in Figures 5 and 6, bumper elements 30 and 32 may include a cylindrical insert 38 configured to be telescopically received within an inner diameter 42 of bumper elements 30 and 32. Insert 38 may be constructed of plastic or other suited material and include a threaded aperture 43 on an interior portion and an outer surface 37. Outer surface 37 may be adhesively secured to inner diameter 42 of bumper elements 30 and 32. Alternatively, a friction fit or other suitable attachment method, known in the art, may be used to attach insert 38 to bumper elements 30 or 32. Insert 38 may also include an inner diameter 40 that is configured to be slidably received on an end of rod assembly 34. Threaded connector 44, on opposing ends of rod assembly 34, may be threadably connected to threaded aperture 43 to securely connect bumper elements 30 and 32 to rod assembly 34.

[0029] A mid bumper 66 may also be included that may be slidably received over rod assembly 34 to a center or mid-section of rod assembly 34 as shown in Figures 2 and 4. Mid bumper 66 provides further cushioning of rod assembly 34 when it is positioned in the interior of a sports stick. Mid bumper 66 may be particularly useful with sports sticks that are fairly long and may result in flexure in the middle section of the rod assembly 34 during use. Mid bumper 66 may include tapered ends similar to end bumpers 30 and 32 as shown in Figure 4 or alternatively may be constructed with straight ends as shown in Figures 2 and 7. Mid bumper 66 may also include a mid insert 68 similar to insert 38 as shown in Figure 7. Mid insert 68 may be constructed of plastic or other suited material and include an outer surface 67. Outer surface 67 may be adhesively secured to an inner diameter 70 of mid bumper 66. Alternatively, a friction fit or other suitable attachment method known in the art may be used to attach mid insert 68 to mid bumper 66. Mid insert 68 may also include an inner diameter 72 that is configured to be slidably received on an exterior of rod assembly 34. Inner diameter 72 may be sized such that it allows mid bumper 66 to slide along rod assembly 34, yet snug enough to

provide a friction fit to hold mid bumper 66 at a desired location along the length of rod assembly 34.

[0030] Sports training device 20 may also include an end cap assembly 48 known in the art and configured to fit on an end of hollow handle 22 as shown in Figures 2, 8 and 9. Many typical end caps for sports sticks such as lacrosse sticks, involve time consuming taping of an end piece or cover to the stick. If a user desires to remove the end piece, the tape must be cut or torn off and discarded, requiring more tape to connect the end piece on the stick. These typical end pieces may also require re-taping after use due to the wear the tape receives during use.

[0031] End cap assembly 48 of the present invention provides a removable and reusable end cap to allow a user to remove the end cap assembly 48 quickly and easily and place rod assembly 34 within the hollow handle of the stick. End cap assembly 48 may be constructed of a pliable plastic or rubber that may conform to the inner diameter of hollow handle 22 and provide a suitable material for a user to handle during use. End cap assembly 48 may include an outer member 50 and an inner member 54. Outer member 50 may include an exposed portion 52 that extends outside of the hollow handle 22 and may be threadably at-

tached to inner member 54. A screw 56 extends through a counter sunk hole 58 in outer member 50 and into a hole 60 in inner member 54. End cap assembly 48 may be placed in an end of hollow handle 22 as shown in Figure 2. End cap assembly 48 achieves a friction fit with interior walls of hollow handle 22 as screw 56 is tightened, and outer member 50 expands over inner member 54. This expansion frictionally holds end cap assembly 48 in position on the end of hollow handle 22. As an alternative, end cap assembly 48 may be constructed as a single component made of rubber or other comparable materials and simply forced into the end of hollow handle 22 to form a friction fit with the inner walls of hollow handle 22. End cap assembly 48 may also be used during actual play of the sport after the training activity has been completed, and rod assembly 34 has been removed from the sport stick.

[0032] To assist in removing rod assembly 34 from the sport stick, a pull cord 74 may be incorporated into the sports training device 20. Because of the friction fit of bumper elements 30 and 32 and mid bumper 66, rod assembly 34 may be difficult to remove from the sport stick, especially in a case where the sport stick has a particularly narrow

interior diameter. Pull cord 74 may be a simple cord, such as a string, that may be tied on the end of rod assembly 34 that is positioned nearest the end cap assembly 48 as shown in Figure 4. As shown in Figure 2, pull cord 74 may be tucked into the end of the hollow handle of the sport stick during use of the training device. In this position it will be readily available to a user to grip and pull when the user has completed the training activity and wants to remove training device 20 from the sport stick.

[0033] In another embodiment of the present invention, a sports training device 20 may be configured as a kit 62 shown in Figure 10. A kit 62 may include at least one rod member 28 and at least one first and second bumper elements 30 and 32. Kit 62 may also include at least one connector 44 and at least one end cap assembly 48. Sports sticks and handles come in a variety of sizes, including various lengths and various diameters and shapes. Therefore, sports training device 20 of the present invention may be provided in a variety of lengths to accommodate these different uses. Kit 62 may include various quantities and sizes of the components of the present invention to enable a user to configure a sport training device 20 suited for the particular need of the user. A carrying case 64 may

also be included to hold and store some or all of the components of kit 62.

[0034] In use, sports training device 20 may be reconfigured to accommodate a variety of different training purposes. A method of using the present invention may include assembling a sports training device 20 to meet the particular user's needs by selecting the desired quantity and weight of rod members 28 to form rod assembly 34. First and second bumper elements 30 and 32 may be connected to opposing ends of rod assembly 34. Training device 20 may be positioned inside a hollow handle 22 of a selected sport stick, and an end cap assembly 48 may be inserted at one end as previously described to prevent rod assembly 34 from protruding or sliding out of hollow handle 22. The user may then use the sport stick for enhanced sports training. Sports training device 20 may be reconfigured by changing the weight of rod members 28 or by changing the length of rod assembly 34 by adding or removing selected rod members 28. When the sports training activity has been completed, the user may remove end cap assembly 48 to allow removal of rod assembly 34 from the sport stick. The user may then reposition end cap assembly 48 on the end of the sport stick for use dur-

ing actual play of the sport.

[0035] While the invention has been described in conjunction with specific embodiments, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, the present invention attempts to embrace all such alternatives, modifications and variations that fall within the spirit and scope of the appended claims.